

DERWENT-ACC-NO: 2002-187665

DERWENT-WEEK: 200224

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TITLE: Radial tire for a passenger vehicle,  
includes a belt  
layer comprising untwisted, yet  
aligned, rubber-coated  
metal wires, and reinforcing layer(s)  
disposed between  
the tread and belt layer

INVENTOR: MORII, T; NAKAGAWA, S ; OBANA, N

PATENT-ASSIGNEE: BRIDGESTONE CORP[BRID]

PRIORITY-DATA: 2000JP-0186753 (June 21, 2000) ,  
2000JP-0140975 (May 12, 2000)

PATENT-FAMILY:

PUB-NO	PAGES	PUB-DATE	MAIN-IPC
US 20010054466	A1	December 27, 2001	N/A
017	B60C	009/00	
EP 1167082	A2	January 2, 2002	E
000	B60C	009/20	
JP 2001322404	A	November 20, 2001	N/A
008	B60C	009/20	
JP 2002002221	A	January 8, 2002	N/A
008	B60C	009/20	

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE  
IT LI LT LU LV MC MK  
NL PT RO SE SI TR

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-DESCRIPTOR	APPL-NO
US20010054466A1		N/A	
2001US-0853674		May 14, 2001	
EP 1167082A2		N/A	
2001EP-0304222		May 11, 2001	
JP2001322404A		N/A	

2000JP-0140975            May 12, 2000  
JP2002002221A            N/A  
2000JP-0186753            June 21, 2000

INT-CL (IPC): B60C009/00, B60C009/18 , B60C009/20 ,  
B60C009/22 ,  
D02G003/48 , D07B001/06

ABSTRACTED-PUB-NO: US20010054466A

BASIC-ABSTRACT:

NOVELTY - A radial tire includes a belt layer comprising two belt plies. The belt layer is formed from rubber-coated metal wires, which exist as metal wire bundles. The metal wires are circular having equal diameters, and are untwisted yet aligned in parallel. A reinforcing layer(s), which is formed of organic fibers covered with rubber, is disposed between the tread and belt layer.

DETAILED DESCRIPTION - A radial tire comprises a carcass layer (2) comprising radial carcass or carcasses ply disposed between a pair of bead members (1). A tread is disposed at an outer side of crown region of the carcass layer, and is forming a ground-contact portion. A belt layer comprising two belt plies (3, 4), is disposed between the tread and crown region of the carcass layer. The belt layer is formed from rubber-coated metal wires, which exist as metal wire bundles. The metal wires are circular having equal diameters, and are untwisted yet aligned in parallel. The metal wire bundles are aligned planarly and in parallel with intervals between the metal wire bundles in transverse direction. A reinforcing layer(s), which is formed of organic fibers covered with rubber or is formed of rubber as main component, is disposed between the tread and belt layer.

USE - For a passenger vehicle.

ADVANTAGE - The inventive tire has lighter-weight structure and high rigidity in circumferential direction. It has high performance, improved rolling resistance, maneuvering stability, and comfort of ride. The arrangement of metal wire bundles prevents the local concentration of stress and improves the durability and wear resistance. The rubber portions in the intervals between the bundles suppress the generation and propagation of separation of belt layers.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-sectional view of left half of the inventive radial tire.

Bead members 1

Carcass layer 2

Belt plies 3, 4

Cap layer 5

CHOSEN-DRAWING: Dwg.1/8

TITLE-TERMS: RADIAL PASSENGER VEHICLE BELT LAYER COMPRISE  
UNTWIST ALIGN RUBBER  
COATING METAL WIRE REINFORCED LAYER DISPOSABLE  
TREAD BELT LAYER

DERWENT-CLASS: A95 Q11

CPI-CODES: A08-R08A; A12-S08C; A12-S08D3; A12-T01;

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1]

018 ; H0124\*R

Polymer Index [1.2]

018 ; Q9999 Q9256\*R Q9212 ; K9892 ; K9416 ; K9676\*R ;

ND01 ; K9596

K9483 ; Q9999 Q9234 Q9212 ; K9574 K9483

Polymer Index [1.3]

018 ; G3189 D00 Fe 8B Tr ; A999 A419 ; S9999 S1672 ;  
A999 A771  
Polymer Index [1.4]  
018 ; A999 A033  
Polymer Index [1.5]  
018 ; A999 A419 ; S9999 S1672 ; A999 A771 ; S9999  
S1070\*R  
Polymer Index [2.1]  
018 ; A999 A033 ; A999 A782 ; H0124\*R  
Polymer Index [2.2]  
018 ; Q9999 Q9267 Q9256 Q9212 ; ND01 ; K9596 K9483 ;  
Q9999 Q9234  
Q9212 ; K9574 K9483  
Polymer Index [3.1]  
018 ; P1989 P1978 P0839 H0293 D01 D10 D11 D18 D20 D32  
D50 D63 D93  
D78 E00 E22 F41 F90 ; A999 A419 ; A999 A782 ; S9999  
S1672 ; S9999  
S1070\*R

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2002-057857

Non-CPI Secondary Accession Numbers: N2002-142285

DERWENT-ACC-NO: 2000-306173

DERWENT-WEEK: 200341

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TITLE: Crown reinforcement for radial tire  
includes oblique reinforcing cord layers with  
surrounding and intervening rubber layers structured to have  
differing modulus of elasticity at edges, resisting  
cracking and delamination

INVENTOR: HERBELLEAU, Y; PEREIRA, P C ; COSTA PEREIRA, P

PATENT-ASSIGNEE: MICHELIN RECH & TECH SA[MICL] , SOC  
TECHNOLOGIE  
MICHELIN[MICL], SOC TECHNOLOGIE MICHELIN SA[MICL]

PRIORITY-DATA: 1998FR-0012593 (October 2, 1998)

PATENT-FAMILY:

PUB-NO	PAGES	PUB-DATE	
LANGUAGE		MAIN-IPC	
EP 1117545 B1		May 21, 2003	F
000	B60C	009/20	
FR 2784054 A1		April 7, 2000	N/A
024	B60C	009/20	
WO 200020232 A2		April 13, 2000	F
000	B60C	000/00	
WO 200020234 A1		April 13, 2000	F
000	B60C	009/20	
BR 9914202 A		July 3, 2001	N/A
000	B60C	009/20	
EP 1117545 A1		July 25, 2001	F
000	B60C	009/20	
US 20010013386 A1		August 16, 2001	N/A
000	B60C	009/18	
KR 2001075488 A		August 9, 2001	N/A
000	B60C	009/20	

DESIGNATED-STATES: DE ES FR GB IT SE BR IN JP KR US AT BE  
CH CY DE DK ES FI FR

GB GR IE IT LU MC NL PT SE BR IN JP KR US AT BE CH CY DE DK  
 ES FI FR GB GR IE  
 IT LU MC NL PT SE AT BE CH CY DE DK ES FI FR GB GR IE IT LI  
 LU MC NL PT SE

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-DESCRIPTOR	APPL-NO
EP 1117545B1		N/A	
1999EP-0952478		October 1, 1999	
EP 1117545B1		N/A	
1999WO-EP07264		October 1, 1999	
EP 1117545B1		Based on	WO 200020234
	N/A		
FR 2784054A1		N/A	
1998FR-0012593		October 2, 1998	
WO 200020232A2		N/A	
1999WO-EP07347		October 4, 1999	
WO 200020234A1		N/A	
1999WO-EP07264		October 1, 1999	
BR 9914202A		N/A	
1999BR-0014202		October 1, 1999	
BR 9914202A		N/A	
1999WO-EP07264		October 1, 1999	
BR 9914202A		Based on	WO 200020234
	N/A		
EP 1117545A1		N/A	
1999EP-0952478		October 1, 1999	
EP 1117545A1		N/A	
1999WO-EP07264		October 1, 1999	
EP 1117545A1		Based on	WO 200020234
	N/A		
US20010013386A1		Cont of	
1999WO-EP07264		October 1, 1999	
US20010013386A1		N/A	
2001US-0823543		March 30, 2001	
KR2001075488A		N/A	
2001KR-0704073		March 30, 2001	

INT-CL (IPC): B60C000/00, B60C009/04 , B60C009/18 ,  
 B60C009/20 ,  
 B60C009/22 , B60C009/24

ABSTRACTED-PUB-NO: FR 2784054A

BASIC-ABSTRACT:

NOVELTY - Cords of one or more reinforcing layers (3, 4) contact bonding rubbers (5, 6, 7). In progressing axially from the equatorial plane to the lateral edges, on the same side of a layer, at least two types of rubber are encountered. The first has the greater modulus of elasticity.

DETAILED DESCRIPTION - Preferred features: Axial widths of the two crown reinforcement layers differ. The layer of smaller width contacts both types of rubber. The layers of the two rubber materials are disposed radially on either side of the other reinforcing layer. Variations of this disposition are detailed, inspection of drawings in the disclosure providing the most ready appreciation of the structures. Features noted follow: Axial width of contact between a bonding layer of rubber of the second modulus, and cords of a reinforcing layer, is less than 30 % and greater than 5% of the axial half-width of the reinforcing layer. Rubbers of third, fourth and fifth moduli of elasticity are included. The ratio between second and first moduli of elasticity is 0.5-0.9, preferably 0.6-0.8. The first modulus of elasticity is 9-13 MPa. The third modulus of elasticity is 3-6 MPa. The fourth is 3-8 MPa and the fifth is 12-20 MPa. Layers of bonding rubber extend axially beyond extremities of the crown layer cords.

USE - To design the crown reinforcement of a radial tire.

ADVANTAGE - The crown structure resists separation at edges of the reinforcing layers. Defects are suppressed at high levels of demand, offering a margin of safety beyond normal practical requirements.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross section through the crown of one implementation.

reinforcing layers 3, 4

bonding rubbers 5, 6, 7

ABSTRACTED-PUB-NO: US20010013386A

EQUIVALENT-ABSTRACTS:

NOVELTY - Cords of one or more reinforcing layers (3, 4) contact bonding rubbers (5, 6, 7). In progressing axially from the equatorial plane to the lateral edges, on the same side of a layer, at least two types of rubber are encountered. The first has the greater modulus of elasticity.

DETAILED DESCRIPTION - Preferred features: Axial widths of the two crown reinforcement layers differ. The layer of smaller width contacts both types of rubber. The layers of the two rubber materials are disposed radially on either side of the other reinforcing layer. Variations of this disposition are detailed, inspection of drawings in the disclosure providing the most ready appreciation of the structures. Features noted follow: Axial width of contact between a bonding layer of rubber of the second modulus, and cords of a reinforcing layer, is less than 30 % and greater than 5% of the axial half-width of the reinforcing layer. Rubbers of third, fourth and fifth moduli of elasticity are included. The ratio between second and first moduli of elasticity is 0.5-0.9, preferably 0.6-0.8. The first modulus of elasticity is 9-13 MPa. The third modulus of elasticity is 3-6 MPa. The fourth is 3-8 MPa and the fifth is 12-20 MPa. Layers of bonding rubber extend axially beyond extremities of the crown layer cords.

USE - To design the crown reinforcement of a radial tire.



ADVANTAGE - The crown structure resists separation at edges of the reinforcing layers. Defects are suppressed at high levels of demand, offering a margin of safety beyond normal practical requirements.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross section through the crown of one implementation.

reinforcing layers 3, 4

bonding rubbers 5, 6, 7

CHOSEN-DRAWING: Dwg.1/7

TITLE-TERMS: CROWN REINFORCED RADIAL OBLIQUE REINFORCED  
CORD LAYER SURROUND

INTERVENING RUBBER LAYER STRUCTURE DIFFER  
MODULUS ELASTIC EDGE  
RESISTANCE CRACK DELAMINATE

DERWENT-CLASS: A95 Q11

CPI-CODES: A12-T01B;

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1]

018 ; H0124\*R

Polymer Index [1.2]

018 ; ND01 ; K9892 ; K9416 ; Q9999 Q9256\*R Q9212 ;  
K9905 ; K9574

K9483 ; K9676\*R ; K9712 K9676 ; B9999 B5301 B5298 B5276  
; B9999

B3849\*R B3838 B3747 ; B9999 B3930\*R B3838 B3747 ; K9701  
K9676

Polymer Index [1.3]

018 ; A999 A419 ; S9999 S1672

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2000-093115

Non-CPI Secondary Accession Numbers: N2000-228971